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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,192	06/06/2002	Brigitte Desiree Alberte Colau	B45194	8137

20462 7590 07/18/2006

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EXAMINER	
HUMPHREY, LOUISE WANG ZHIYING	
ART UNIT	**PAPER NUMBER**
1648	

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/049,192	COLAU ET AL.	
	Examiner	Art Unit	
	Louise Humphrey, Ph.D.	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *40-71 and 73-93* is/are pending in the application.

4a) Of the above claim(s) *40-56,60,61,63,77 and 78* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *57-59,62,64-71,73-76 and 79-93* is/are rejected.

7)☒ Claim(s) *82-93* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/6/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The Office acknowledges the receipt of Applicant's election and Amendment, filed on 17 November 2005. Applicant elects Group III, claims 57-71, 73-76, 79-93, the species of viral proteins of VP4, comprising nucleotide 501T or amino acid residue 167F, and VP7, comprising nucleotide 605T and residue 202M, and the antacid of calcium carbonate. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 40-71 and 73-93 are pending. Claims 40-56, 60, 61, 63, 77, and 78 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention/species. Claims 57-59, 62, 64-71, 73-76, and 79-93 are examined to the extent that they read on the elected species.

Information Disclosure Statement

An initialed and dated copy of each of Applicant's IDS form 1449, filed on 6 February 2002, is attached to the instant Office action.

Specification

Applicant is required to update the status (pending, allowed, etc.) of all parent priority applications in the first line of the specification. The status of all citations of US filed applications in the specification should also be updated where appropriate.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. §112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 57-59, 62, 64-71, 73-76, and 79-93 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 57, the phrase "a single variant or substantially a single variant" is unclear whether the word "variant" means mutant, as inferred by the limitations following the phrase. If the word "variant" indeed means mutant, does it mean a single nucleotide or single amino acid substitution, addition, or deletion? The word "substantially" further confounds the claim because it does not tell the designated positions of or the degree of mutation. Claims 58, 59, 62, 64-71, 73-76, 79-93 are rejected for depending from claim 57.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 57, 58, 69, and 79-81 are rejected under 35 U.S.C. §102(e) as being anticipated by Hoshino *et al.* (US 2002/0058043).

The instant claims are directed to a vaccine composition comprising a live attenuated human rotavirus population virus, comprising a single variant defined by a nucleotide sequence encoding at least one of the major viral proteins designated as VP4 and VP7 admixed with a suitable pharmaceutical carrier or adjuvant.

Hoshino *et al.* teaches vaccine compositions of attenuated human rotavirus, which is a biological cloned strain (p.5, ¶38) derived from human rotavirus with mutations but contains VP4 and VP7 proteins, in conjunction with a physiologically acceptable carrier and an adjuvant (p.2, ¶10). Hoshino *et al.* further teaches packaging the aqueous solutions, or lyophilizing the rotavirus vaccines to be combined with a sterile solution prior to administration. The compositions may contain pharmaceutically acceptable auxiliary substances (p.4, ¶24-25). Thus, the instant invention is anticipated by Hoshino *et al.*

Claims 57-59, 62, 65, 69, 71, 80, and 81 are rejected under 35 U.S.C. §102(b) as being anticipated by Burke *et al.* (US PAT 5,932,223).

The instant invention is further limited to the formulations of a rotavirus vaccine with an antacid.

Burke *et al.* teaches liquid and lyophilized formulations (column 4) of vaccines (ABSTRACT) containing attenuated human rotaviruses (column 2, lines 10-16). More particularly, Burke *et al.* teaches the vaccine composition formulated for oral

administration (column 3, lines 52-55) with an inorganic antacid (column 9, last line) such as Mylanta, which is an aluminum hydroxide - magnesium hydroxide compound. Specifically, Burke *et al.* teaches vaccine compositions comprising reassortant rotaviruses comprising human rotavirus neutralizing antigen, VP7 and VP4, from any serotype (column 6, lines 17-63). Thus, the instant invention is anticipated by Burke *et al.*

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 57, 58, 69, 73, and 79-81 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hoshino *et al.* (US 2002/0058043) in view of Chen *et al.* (US PAT 6,552,024).

The instant invention is further limited to the form of a quick dissolving tablet for immediate dissolution when placed on the tongue.

The relevance of Hoshino *et al.* is set forth above. Hoshino *et al.* does not disclose the quick dissolving tablet.

Chen *et al.* suggests quick dissolving tablets for pharmaceutical oral dosage forms. These tablets are commonly placed on the tongue and disintegrate rapidly in the oral cavity (column 1, lines 46-66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the composition of Hoshino *et al.* by further formulation of the lyophilized rotavirus vaccine into quick dissolving tablets as taught by Chen *et al.* The skilled artisan would have been motivated to do so to improve the absorption of the active ingredient and by increasing the solubility and dissolution rate of the drug. There would have been a reasonable expectation of success, given the multiple methods of forming the quick dissolving tablet and their wide application to any pharmaceutical active ingredients (see the paragraph bridging column 7 and 8) including vaccines, as taught by Chen *et al.* Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Claims 57-59, 62, 64-67, 69, 74, and 79-81 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hoshino *et al.* (US 2002/0058043) in view of Tsutsumi *et al.* (US PAT 4,152,421).

The instant invention is further limited to the specific embodiment of a lyophilized live attenuated rotavirus admixed with an inorganic antacid such as calcium carbonate and a viscous agent such as xanthane gum.

The relevance of Hoshino *et al.* is set forth above. Hoshino *et al.* does not disclose the specific formulation with calcium carbonate and xanthane gum.

Tsutsumi *et al.* suggests a dentifrice composition comprising calcium carbonate as a polishing agent and xanthane gum as a binder (column 2, lines 56-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the composition of Hoshino *et al.* by adding calcium carbonate and xanthane gum as taught by Tsutsumi *et al.* The skilled artisan would have been motivated to do so because calcium carbonate provides the health benefits of an antacid and calcium supplement while xanthane gum thickens the composition for tablet formation, which is faster and easier for oral delivery. There would have been a reasonable expectation of success, given the wide usage and safety of calcium carbonate and xanthane gum in food and drugs such as a dentifrice composition, as taught by Tsutsumi *et al.* Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Claims 57-59, 62, 64-71, 74-76, and 79-81 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hoshino *et al.* (US 2002/0058043) in view of Tsutsumi *et al.* (US PAT 4,152,421), and further in view of the Therapeutic Goods Administration in the Department of Community Services and Health in Australia (1991).

The instant invention is further limited to the packaging of the lyophilized formulations in a blister pack and of the liquid formulations in separate containers.

The relevance of Hoshino *et al.* and Tsutsumi *et al.* is set forth above. Although both implicitly disclose placing all ingredients in the same container for lyophilized formulations, neither reference explicitly discloses placing the live attenuated virus and the antacid composition in separate containers for liquid formulations.

The Therapeutic Goods Act suggests a blister pack containing tablets or capsules with differing formulations to be taken in consecutive order and a pharmaceutical pack containing separate containers or separate formulations for use as part of a single regimen of treatment, for example, an active ingredient in one vial and a diluent in another vial (see bullet point no. 17, Composit Packs).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the packaging of the composition of Hoshino *et al.* and Tsutsumi *et al.* in separate containers, as taught by The Therapeutic Goods Administration. The skilled artisan would have been motivated to do so for the ease of reconstituting the active ingredient and the adjuvant/antacid with an aqueous solution in case each needs to be mixed with a solution separately in a container before being combined or in case each needs to be adding to the aqueous solution in a certain order. Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Allowable Subject Matter

Claims 82-93 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 82-93 are apparently free of prior art of the record. The closest prior art is Burke *et al.* (US PAT 5,932,223), which does not teach or fairly suggest the VP4

mutation and the VP7 mutation, or the nucleotide sequences of SEQ ID NO:1 and SEQ ID NO:2.

Applicant is reminded that any amendment must point to a basis in the specification so as not to add new matter. See MPEP §714.02 and §2163.06.

Contact Information

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louise Humphrey, Ph.D. whose telephone number is 571-272-5543. The examiner can normally be reached on Mon-Fri, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce Campell can be reached on 571-272-0974. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Louise Humphrey, Ph.D.
27 June 2006

JEFFREY S. PARKIN, PH.D.
PRIMARY EXAMINER